Lab Code: 200707-0

ETSI EN 300 328 V1.7.1 (2006-10)

TEST REPORT

For

Xingtel Xiamen Group Co., Ltd.

Xingtel Building, Chuangxin Road, Torch Hi-Tech Industrial District,
Xiamen 361006, PR China

Model: i-700

Report Type:	**Product Type:**
Original Report	iPhone Complimate

Test Engineer: Jimmy Xiao

Report Number: RSZ111017004-22

Report Date: 2011-12-08

Reviewed By: Merry Zhao — EMC Engineer

Test Laboratory: Bay Area Compliance Laboratories Corp. (Shenzhen)
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GENERAL INFORMATION

Product Description for Equipment under Test (EUT)

The *Xingtel Xiamen Group Co., Ltd.*'s product, model number: *i-700* or the "EUT" as referred to in this report was a base of *iPhone Complimate*, which measured approximately: 17.9 cm (L) x 10.6cm (W) x 4.3cm (H), rated input voltage: DC 6 V adapter.

Adapter information: AC power adapter
Model: MN-A006-E130;
Input: 100-240V~50/60Hz, 0.3A Max;
Output: DC 6V, 700mA / DC 6V, 300mA

** All measurement and test data in this report was gathered from production sample serial number: 1110045 (Assigned by BACL, Shenzhen). The EUT was received on 2011-10-17.*

Objective

This report is prepared on behalf of *Xingtel Xiamen Group Co., Ltd.* in accordance with ETSI EN 300 328 V1.7.1 (2006-10), Electromagnetic compatibility and Radio spectrum Matters (ERM); Wideband transmission systems; Data transmission equipment operating in the 2.4 GHz ISM band and using wide band modulation techniques; Harmonized EN covering essential requirements under article 3.2 of the R&TTE Directive

The objective is to determine compliance with ETSI EN 300 328 V1.7.1 (2006-10).

Related Submittal(s)/Grant(s)

No related submittal(s).

Test Methodology

All measurements contained in this report were conducted with ETSI EN 300 328 V1.7.1 (2006-10).

Test Facility

The Test site used by Bay Area Compliance Laboratories Corp. (Shenzhen) to collect test data is located on the 6/F, the 3rd Phase of WanLi Industrial Building, ShiHua Road, FuTian Free Trade Zone Shenzhen, Guangdong, China.

Test site at Bay Area Compliance Laboratories Corp. (Shenzhen) has been fully described in reports submitted to the Federal Communication Commission (FCC). The details of these reports have been found to be in compliance with the requirements of Section 2.948 of the FCC Rules on December 06, 2010. The facility also complies with the radiated and AC line conducted test site criteria set forth in ANSI C63.4-2009.

The Federal Communications Commission has the reports on file and is listed under FCC Registration No.: 382179. The test site has been approved by the FCC for public use and is listed in the FCC Public Access Link (PAL) database.

Additionally, Bay Area Compliance Laboratories Corp. (Shenzhen) is an ISO/IEC 17025 accredited laboratory, and is accredited by National Voluntary Laboratory Accredited Program (Lab Code 200707-0).

The current scope of accreditations can be found at http://ts.nist.gov/Standards/scopes/2007070.htm

SYSTEM TEST CONFIGURATION

Description of Test Configuration

The measurement were taken in contious transmitting mode using the TEST JIG provided by the applicant for controlling the EUT via UART interface so that the operating frequency of the EUT could be changed with the frequency hopping turned off.

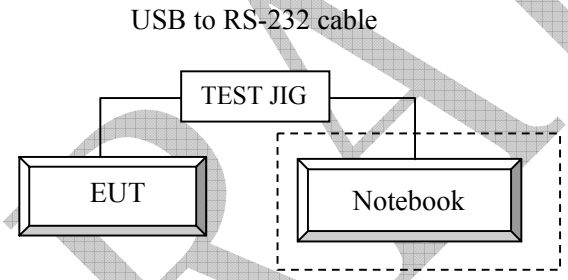
Equipment Modifications

No modifications were made to the EUT.

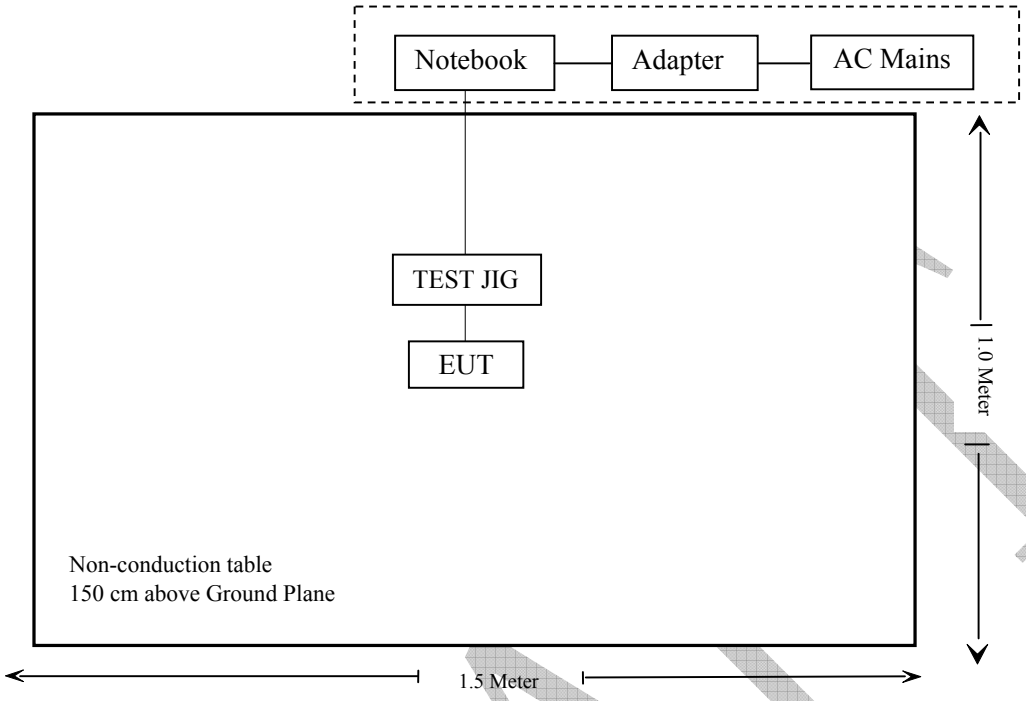
Local Support Equipment List and Details

Manufacturer	Description	Model	Serial Number	FCC ID
DELL	Notebook	PP05L	N/A	DOC

Configuration of Test Setup



Block Diagram of Test Setup



SUMMARY OF TEST RESULTS

ETSI EN 300 328 v1.7.1 (2006-10)	Description of Test	Test Result
§ 4.3.1	Maximum transmit power	Compliance
§ 4.3.2	Maximum e.i.r.p. Spectral density	N/A*
§ 4.3.3	Frequency range	Compliance
§ 4.3.4	Frequency hopping requirements	Compliance
§ 4.3.5	Medium access protocol	N/A**
§ 4.3.6	Transmitter spurious emissions	Compliance
§ 4.3.7	Receiver spurious emissions	Compliance

Note:

N/A* – This item has no requirement for FHSS equipment.

N/A**– The medium access protocol has been implemented by the EUT.

ETSI EN 300 328 V1.7.1 (2006-10) §4.3.1 - MAXIMUM TRANSMIT POWER

Applicable Standard

According to ETSI EN 300 328 V1.7.1 (2006-10) §4.3.1.2, the equivalent isotropic radiated power shall be equal to or less than -10 dBW (100 mW) e.i.r.p. This limit shall apply for any combination of power level and intended antenna assembly.

Test Equipment List and Details

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
Rohde & Schwarz	Test Receiver	ESCI	100224	2011-11-11	2012-11-10
WUHUAN	Temperature & Humidity Chamber	HTP205	20021115	2011-06-04	2012-06-03
Mini-Circuits	Amplifier	ZVA-213+	T-E27H	2011-03-08	2012-03-07
SUNOL SCIENCES	Horn Antenna	DRH-118	A052604	2011-05-05	2012-05-04
Wellstar	DC Power Supply	PS-303	9901449	N/A	N/A

*** Statement of Traceability:** Bay Area Compliance Laboratories Corp. (Shenzhen) attests that all calibrations have been performed in accordance to NVLAP requirements, traceable to the NIST.

Test Procedure

The measurement shall be performed using normal operation of the equipment with modulation, using the test data sequence, applied. The test procedure shall be as follows:

Step 1:

- using a suitable means, the output of the transmitter shall be coupled to a diode detector;
- the output of the diode detector shall be connected to the vertical channel of an oscilloscope;
- the combination of the diode detector and the oscilloscope shall be capable of faithfully reproducing the envelope peaks and the duty cycle of the transmitter output signal.
- The observed duty cycle of the transmitter (Tx on + Tx off) shall be noted as x, ($0<x<1$) and recorded in the test report. For the purpose of testing, the equipment shall be operated with a duty cycle that is equal to or more than 0.1.

Step 2

- the average output power of the transmitter shall be determined using a wideband, calibrated RF power meter with a thermocouple detector or an equivalent thereof and, where applicable, with an integration period that exceeds the repetition period of the transmitter by a factor 5 or more. The observed value shall be recorded as “A” (in dBm);
- the e.i.r.p. shall be calculated from the above measured power output A, the observed duty cycle x, and the applicable antenna assembly gain “G” in dBi, according to the formula:
    - $P = A+G+10\log(1/x)$
    - P shall not exceed the value specified for Effective radiated power.

Radiated measurement:

This method shall only be used for integral antenna equipment that does not have a temporary antenna connector(s) provided.

In the case of radiated measurements, using a test site as described in annex B and applicable measurement procedures as described in annex C, the equivalent isotropic radiated power as defined in clause 4.3.1.1 shall be measured and recorded.

In case of radiated measurements on smart antenna systems using symmetrical power distribution across the available transmit chains, the UUT should, where possible, be configured so that only one transmit chain (antenna) is activated while the other transmit chains are disabled. Where this is not possible, the method used shall be documented in the test report.

If only one transmit chain was tested, the result for the active transmit chain shall be corrected to be valid for the whole system (all transmit chains).

Note: The power (in mW) for one transmit chain need to be multiplied with the number of transmit chains to obtain the total power for the system.

Smart antenna systems using assymmetrical power distribution across the available transmit chains shall always be tested in accordance with the method for conducted measurements described in clause 5.7.2.2 which means that temporary antenna connectors shall be provided.

Test Data

Environmental Conditions

Temperature:	20℃
Relative Humidity:	50 %
ATM Pressure:	100.0 kPa

The testing was performed by Jimmy Xiao on 2011-12-01.

Test Mode: Transmitting

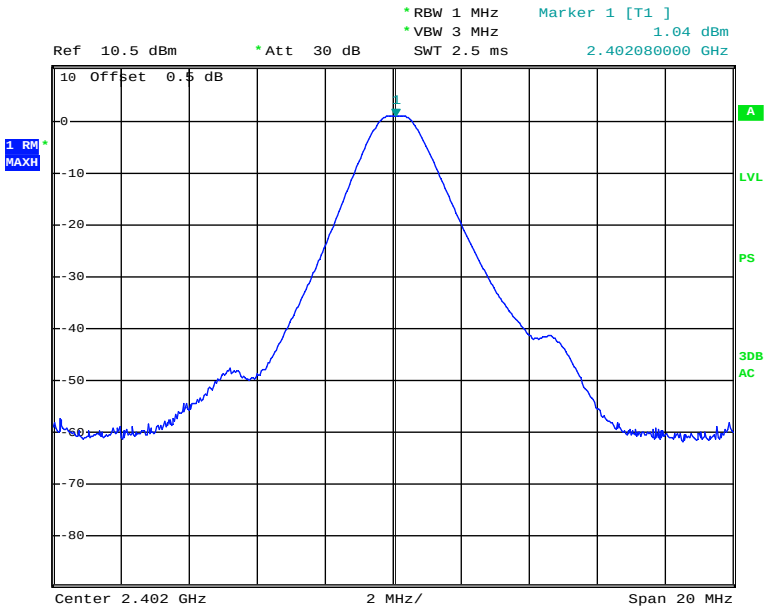
Test Result: Compliant.

Please refer to following tables and plots.

Test Conditions			Reading (dBm)	Antanna gain(dBi)	EIRP(dBm)	Limit (dBm)
Temperature (℃)		Power (V_{AC})				
Low channel	+10	207	0.99	3	3.99	20
		230	1.08	3	4.08	20
		253	1.06	3	4.06	20
	+25	207	1.00	3	4.00	20
		230	1.04	3	4.04	20
		253	1.05	3	4.05	20
	+40	207	1.01	3	4.01	20
		230	1.12	3	4.12	20
		253	1.02	3	4.02	20
Middle channel	+10	207	0.41	3	3.41	20
		230	0.42	3	3.42	20
		253	0.37	3	3.37	20
	+25	207	0.38	3	3.38	20
		230	0.42	3	3.42	20
		253	0.41	3	3.41	20
	+40	207	0.45	3	3.45	20
		230	0.33	3	3.33	20
		253	0.35	3	3.35	20
High channel	+10	207	0.19	3	3.19	20
		230	0.34	3	3.34	20
		253	0.31	3	3.31	20
	+25	207	0.21	3	3.21	20
		230	0.25	3	3.25	20
		253	0.32	3	3.32	20
	+40	207	0.33	3	3.33	20
		230	0.24	3	3.24	20
		253	0.36	3	3.36	20

Normal condition:

Low Channel



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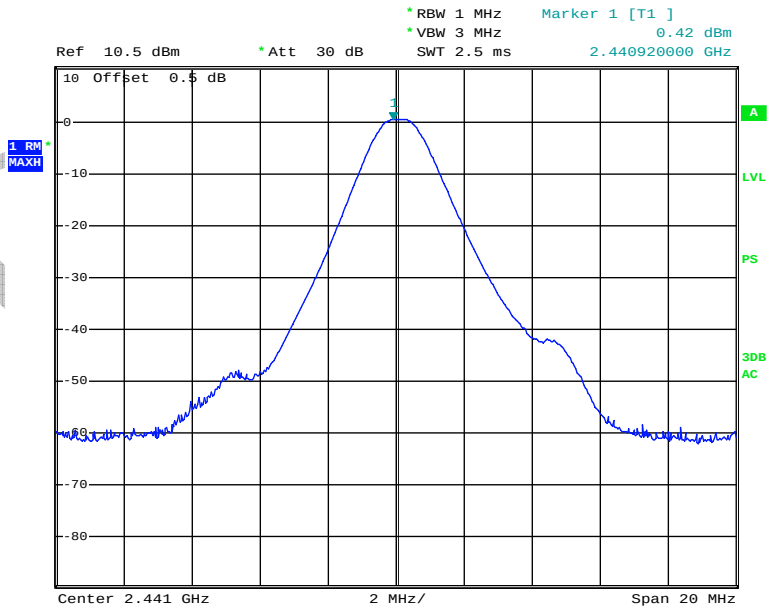
Middel Channel



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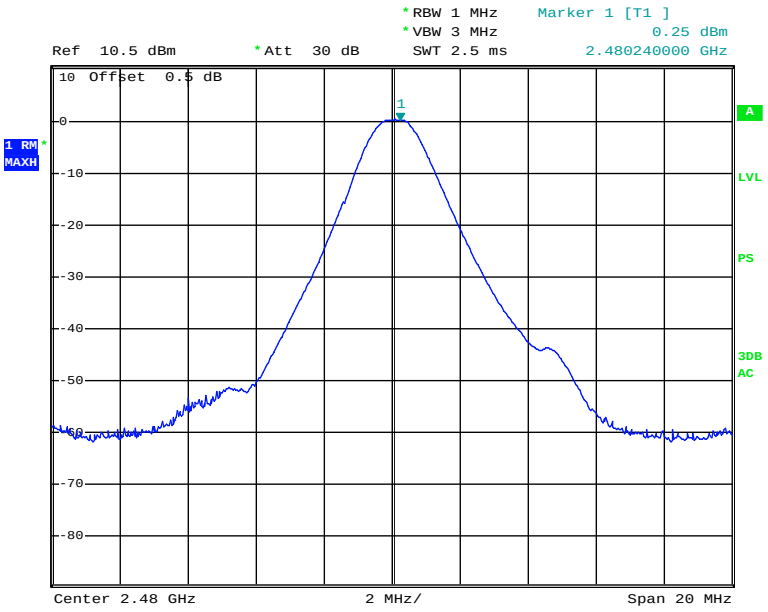
High Channel



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ETSI EN 300 328 V1.7.1 (2006-10) §4.3.3 - FREQUENCY RANGE

Applicable Standard

The frequency range of the equipment is determined by the lowest and highest frequencies occupied by the powerenvelope.

f_H is the highest frequency of the power envelope: it is the frequency furthest above the frequency of maximum power where the output power drops below the level of -80 dBm/Hz e.i.r.p. spectral power density (-30 dBm if measured in a 100 kHz bandwidth).

f_L is the lowest frequency of the power envelope; it is the frequency furthest below the frequency of maximum powerwhere the output power drops below the level equivalent to -80 dBm/Hz e.i.r.p. spectral power density (or -30 dBm if measured in a 100 kHz bandwidth).

For a given operating frequency, the width of the power envelope is (f_H - f_L). In equipment that allows adjustment or selection of different operating frequencies, the power envelope takes up different positions in the allocated band. The frequency range is determined by the lowest value of f_L and the highest value of f_H resulting from the adjustment of the equipment to the lowest and highest operating frequencies.

Test Equipment List and Details

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
WUHUAN	Temperature & Humidity Chamber	HTP205	20021115	2011-06-04	2012-06-03
Rohde & Schwarz	Test Receiver	ESCI	100224	2011-11-11	2012-11-10
Wellstar	DC Power Supply	PS-303	9901449	N/A	N/A

*** Statement of Traceability:** Bay Area Compliance Laboratories Corp. (Shenzhen) attests that all calibrations have been performed in accordance to NVLAP requirements, traceable to the NIST.

Test Procedure

1. Put the EMI Test Receiver in video averaging mode with a minimum of 50 sweeps selected;
2. Select the lowest operating frequency of the equipment under test and activate the transmitter with modulation applied. The RF emission of the equipment shall be displayed on the spectrum analyzer.
3. Using the marker of the spectrum analyzer, find lowest frequency below the operating frequency at which spectral power density drops below the required value.
4. Select the highest operating frequency of the equipment under test and find the highest frequency at which the spectral power density drop below the required value.
5. The difference between the frequencies measured in step 3 and step 4 is the operating frequency range.

Test Data

Environmental Conditions

Temperature:	25℃
Relative Humidity:	56 %
ATM Pressure:	100.0 kPa

The testing was performed by Jimmy Xiao on 2011-12-01.

Test Mode: Transmitting

Test Conditions		**Frequency (MHz)**			
Temperature (℃)	**Voltage (V_{AC})**	**f_L at Low Channel**	**f_H at High Channel**	**f_L Limit**	**f_H Limit**
T_{min} = 10	207	2401.6552	2480.4327	2400	2483.5
	230	2401.6562	2480.4312	2400	2483.5
	253	2401.6541	2480.4384	2400	2483.5
T_{nor} = +25	207	2401.6542	2480.4361	2400	2483.5
	230	2401.6547	2480.4356	2400	2483.5
	253	2401.6556	2480.4375	2400	2483.5
T_{max} =+40	207	2401.6571	2480.4378	2400	2483.5
	230	2401.6542	2480.4392	2400	2483.5
	253	2401.6553	2480.4314	2400	2483.5

ETSI EN 300 328 V1.7.1 (2006-10) §4.3.4 - FREQUENCY HOPPING REQUIREMENTS

Applicable Standard

According to ETSI EN 300 328 V1.7.1 (2006-10) §4.3.4,

a) make use of at least 15 well defined, non-overlapping channels or hopping positions separated by the channel bandwidth as measured at 20 dB below peak power;

or if capable of adaptive frequency hopping:

b) at least be capable of operating over a minimum of 90 % of the band specified in table 1, from which at any given time a minimum of 20 channels or hopping positions shall be used.

For both cases, the minimum channel separation shall be 1 MHz, while the dwell time per channel shall not exceed 0.4 s.

Test Equipment List and Details

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
Rohde & Schwarz	Test Receiver	ESCI	100224	2011-11-11	2012-11-10
Wellstar	DC Power Supply	PS-303	9901449	N/A	N/A

*** Statement of Traceability:** Bay Area Compliance Laboratories Corp. (Shenzhen) attests that all calibrations have been performed in accordance to NVLAP requirements, traceable to the NIST.

Test Procedure

Dwell time:

The dwell time per channel shall not exceed 0.4 s.
While the equipment is operating (transmitting and/or receiving) each channel of the hopping sequence shall be occupied at least once during a period not exceeding four times the product of the dwell time per hop and the number of channels. Systems that meet the above constraints shall be tested according to the requirements for FHSS modulation.

20 dB bandwidth Testing

1. Check the calibration of the measuring instrument using either an internal calibrator or a known signal from an external generator.
2. Position the EUT without connection to measurement instrument. Turn on the EUT and connect it to measurement instrument. Then set it to any one convenient frequency within its operating range. Set a reference level on the measuring instrument equal to the highest peak value.
3. Measure the frequency difference of two frequencies that were attenuated 20 dB from the reference level. Record the frequency difference as the emission bandwidth.
4. Repeat above procedures until all frequencies measured were complete.

Channel separation:

1. Set the EUT in transmitting mode, spectrum Bandwidth was set at 100 kHz, maxhold the channel.
2. Set the adjacent channel of the EUT maxhold another truce
3. Measure the channel separation.

Hopping sequence:

1. Check the calibration of the measuring instrument (SA) using either an internal calibrator or a known signal from an external generator.
2. Set the EUT in transmitting mode from first channel to last.
3. By using the Max-Hold function record the Quantity of the channel.

Test Data

Environmental Conditions

Temperature:	25 °C
Relative Humidity:	56 %
ATM Pressure:	100.0 kPa

The testing was performed by Jimmy Xiao on 2011-12-01.

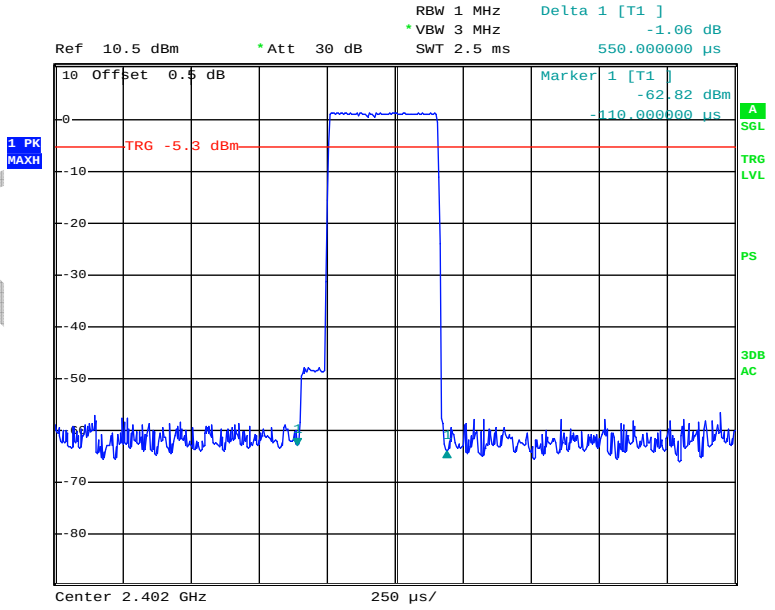
Test Mode: Transmitting

Test Result: Pass

Time of Occupancy

Mode	Channel	Pulse Width (ms)	Dwell Time (s)	Limit (s)	Result
DH 1	Low	0.550	0.176	0.4	Pass
	Middle	0.535	0.171	0.4	Pass
	High	0.545	0.174	0.4	Pass
	Note: Dwell time=Pulse time (ms) × (1600 ÷ 2 ÷ 79) ×31.6 s				
DH 3	Low	1.80	0.288	0.4	Pass
	Middle	1.79	0.286	0.4	Pass
	High	1.81	0.290	0.4	Pass
	Note: Dwell time=Pulse time (ms) × (1600 ÷ 4 ÷ 79) ×31.6 s				
DH 5	Low	3.10	0.331	0.4	Pass
	Middle	3.14	0.335	0.4	Pass
	High	3.14	0.335	0.4	Pass
	Note: Dwell time=Pulse Time (ms) × (1600 ÷ 6 ÷ 79) ×31.6 s				

Low Channel for DH 1



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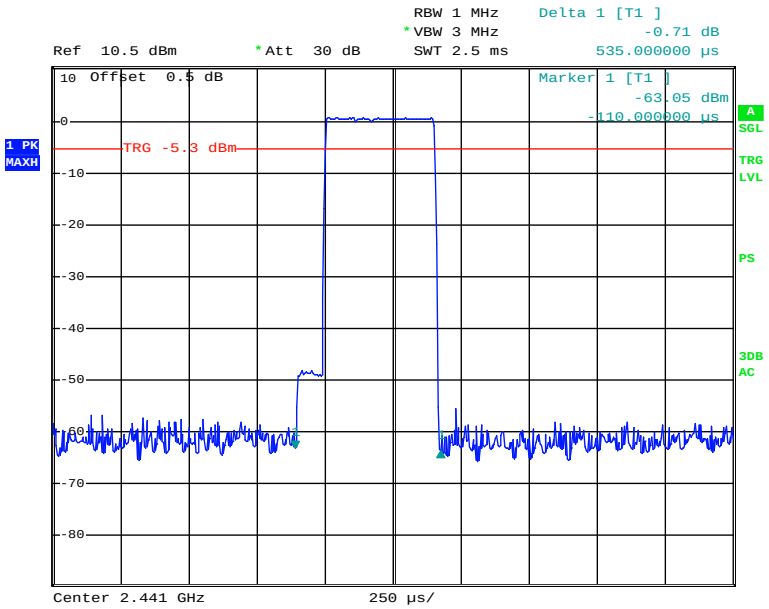
Middle Channel for DH 1



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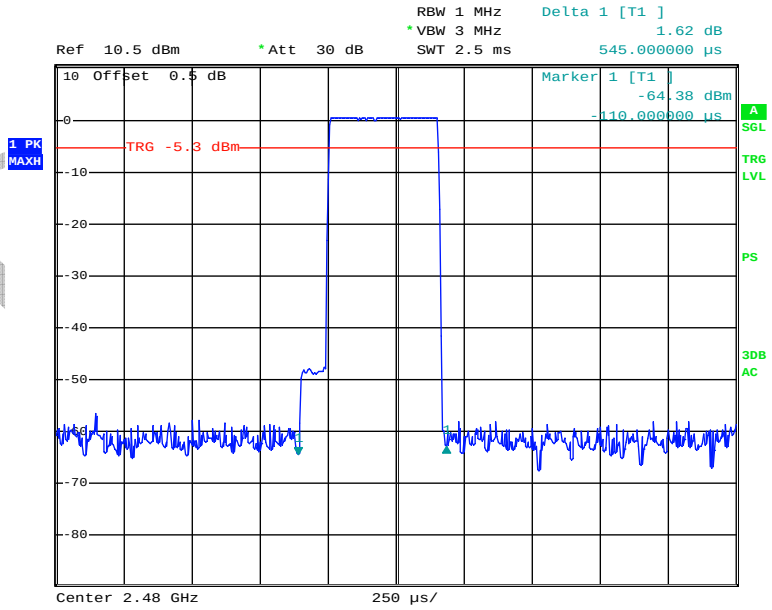
High Channel for DH 1



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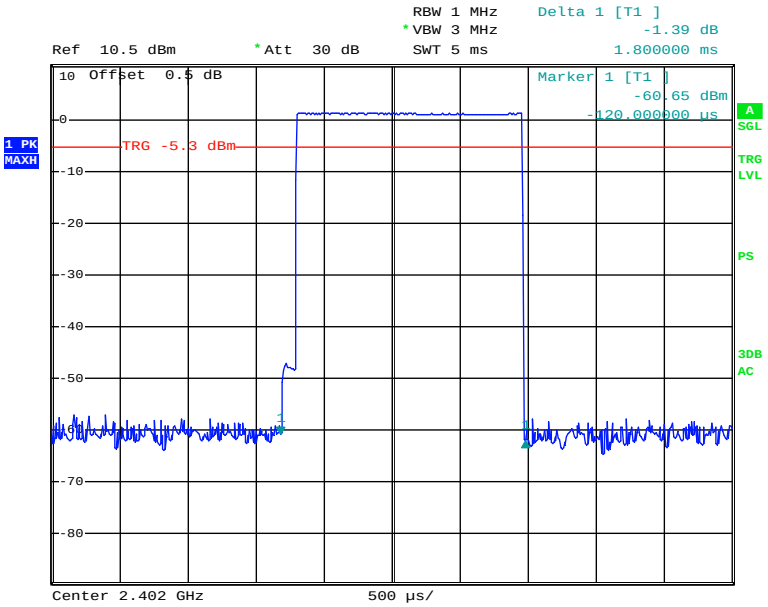
Low Channel for DH 3



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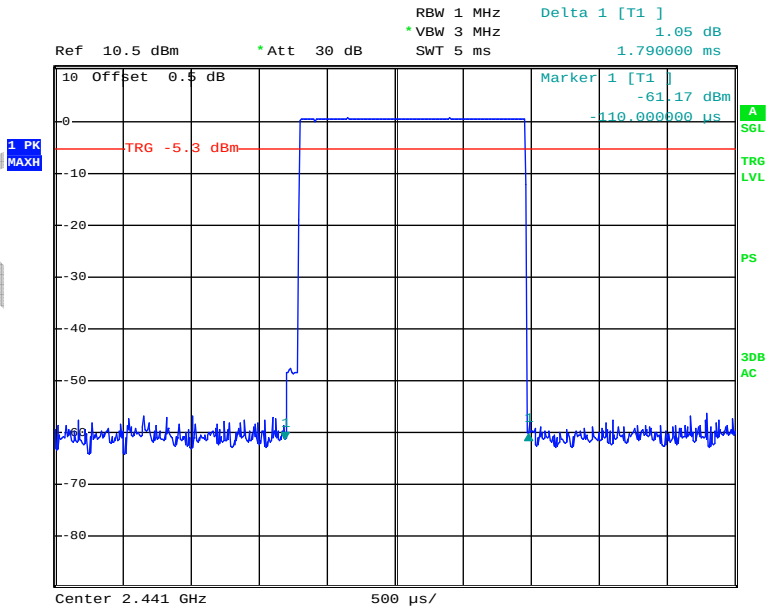
Middle Channel for DH 3



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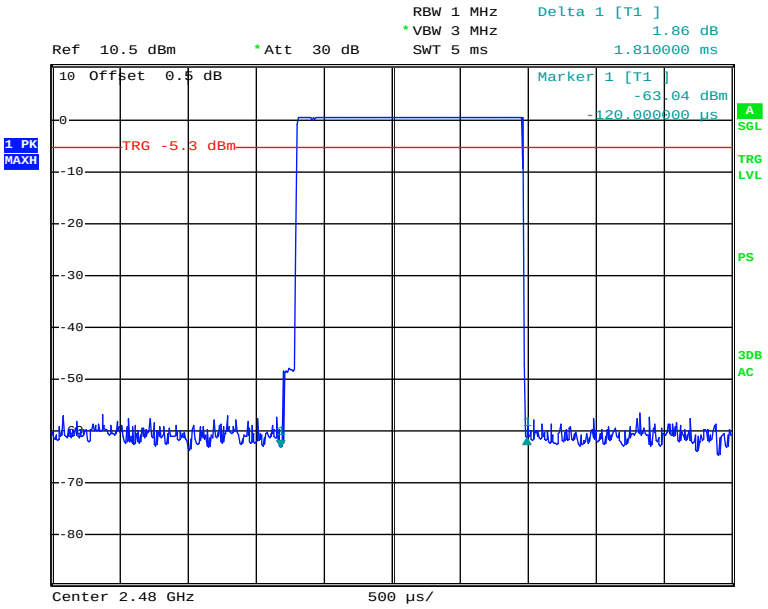
High Channel for DH 3



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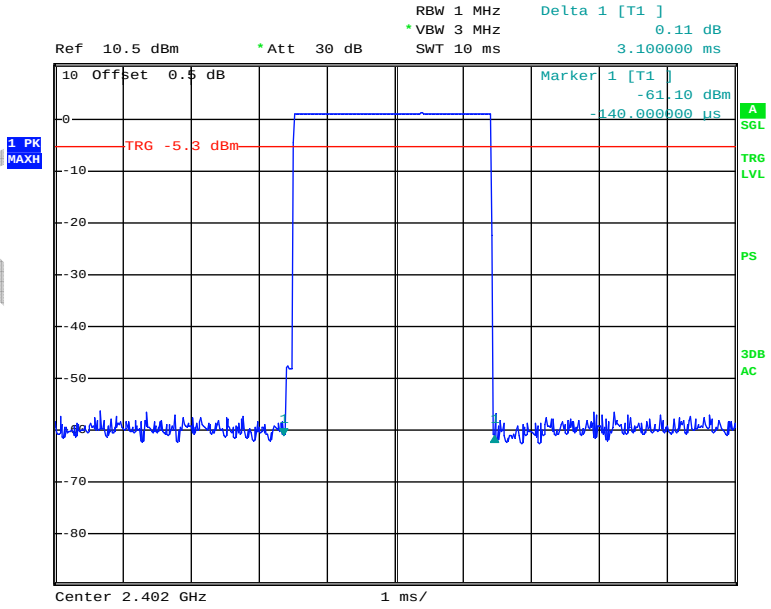
Low Channel for DH 5



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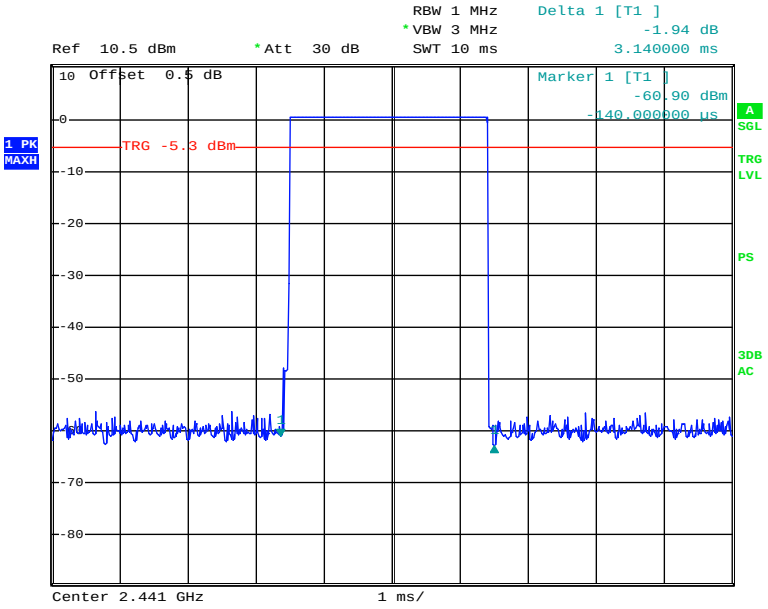
Middle Channel for DH 5



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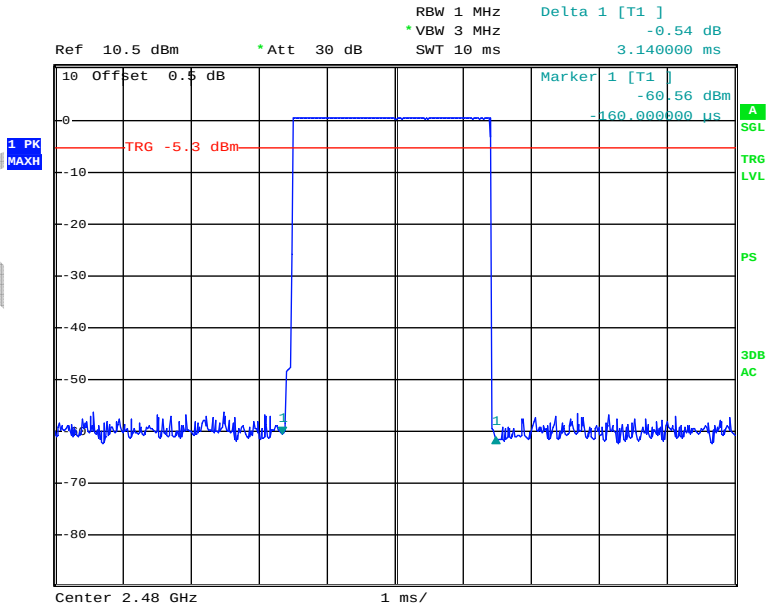
High Channel for DH 5



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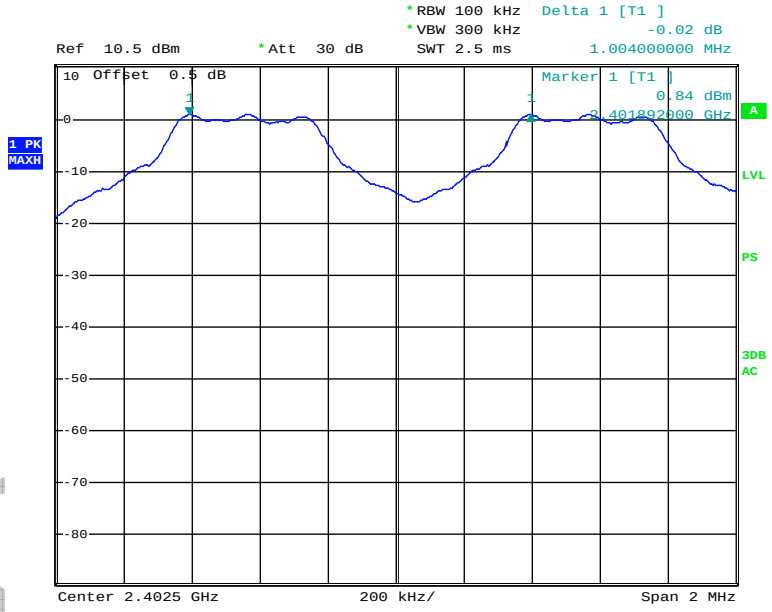
Channel Separation:

Channel	Channel Frequency (MHz)	Channel Separation (MHz)	Limit (MHz)	Result
Low Channel	2402	1.004	1	Pass
Adjacent Channel	2403			
Middle Channel	2440	1.000	1	Pass
Adjacent Channel	2441			
High Channel	2479	1.004	1	Pass
Adjacent Channel	2480			

Please refer to following plots:

Low channel



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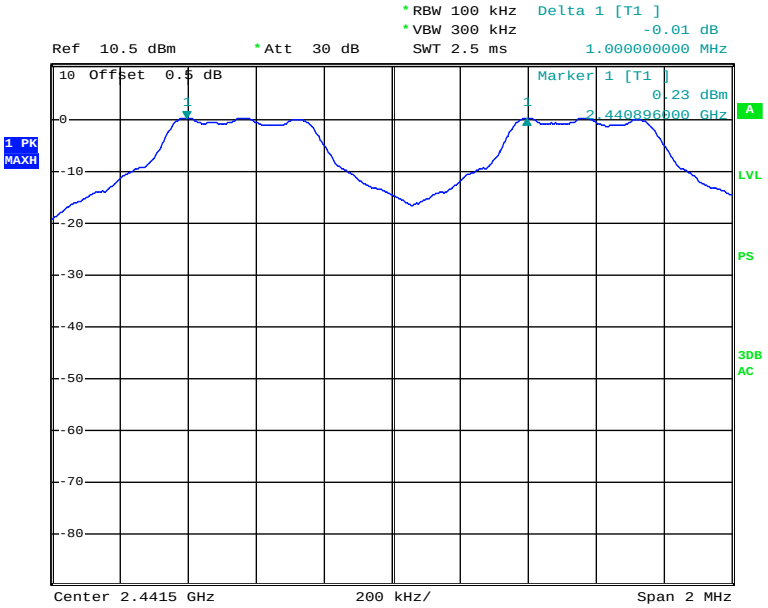
Middle channel



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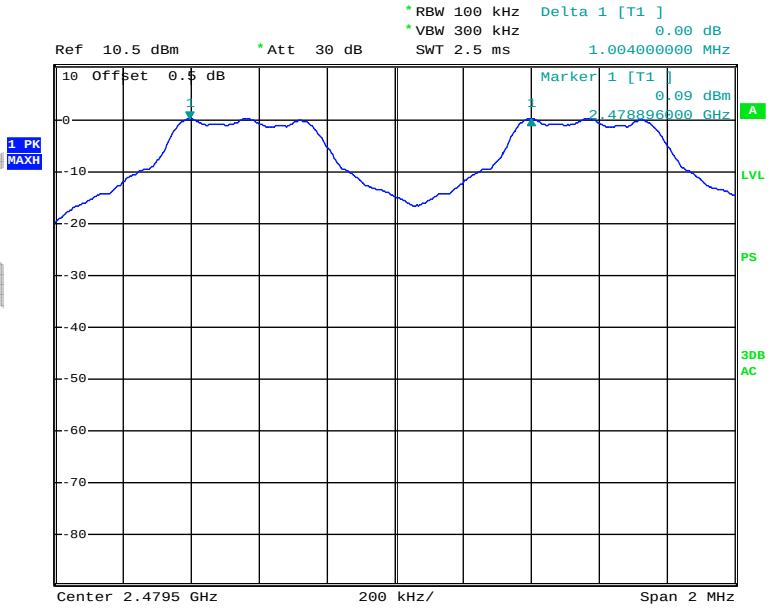
High channel



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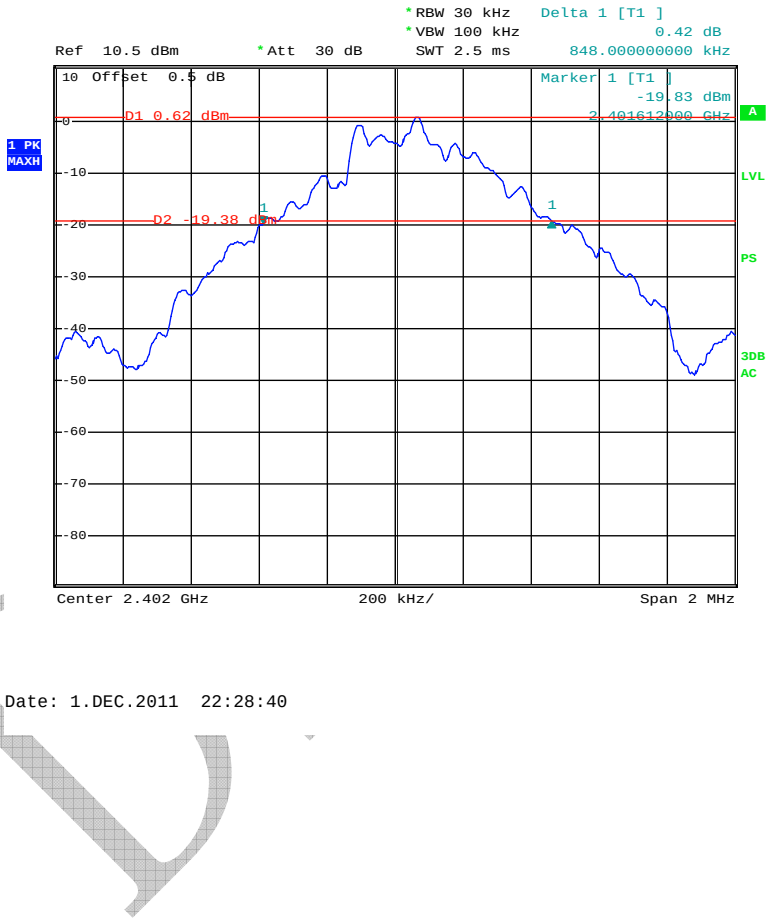
20 dB Bandwidth:

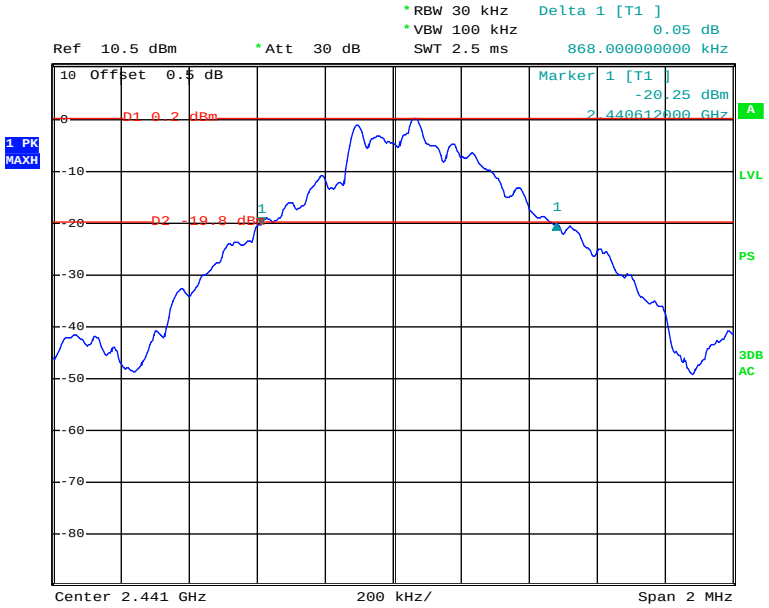
Channel	Channel Frequency (MHz)	20dB Bandwidth (MHz)
Low	2402	0.848
Middle	2441	0.868
High	2480	0.856

Please refer to the plots attached.

Low channel



Middle channel



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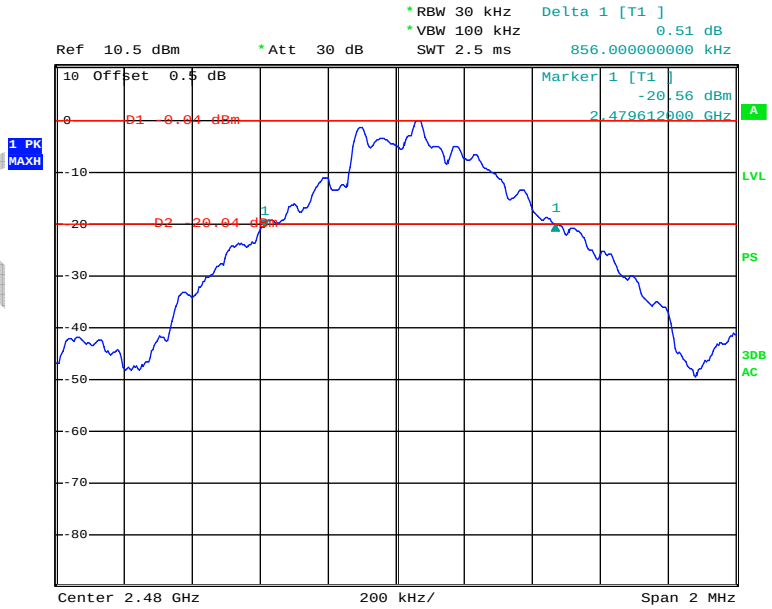
High channel



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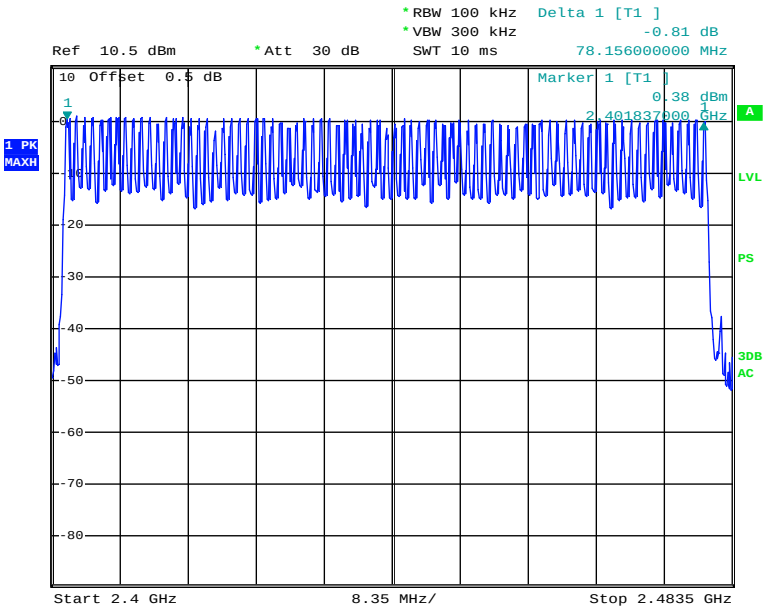
Hopping Sequence:

The frequency hopping systems operating in 2400-2483.5 MHz band employ 79 nonoverlapping channels.

Hopping Channel Frequency Range (MHz)	Number of Hopping Channel	Limit
2400-2483.50	79	≥15

Test Result: Pass



ETSI EN 300 328 V1.7.1 (2006-10) §4.3.6 - TRANSMITTER SPURIOUS EMISSIONS

Applicable Standard

According to ETSI EN 300 328 V1.7.1 (2006-10) §4.3.6, Transmitter spurious emissions are emissions outside the frequency range(s) of the equipment as defined in § 4.3.3.1 when the equipment is in Transmit mode and/or in Standby mode.

The spurious emissions of the transmitter shall not exceed the values in following tables:

Table 1: Transmitter limits for narrowband spurious emissions

Frequency Range	Limit when Operating	Limit when Standby
30 MHz to 1 GHz	-36 dBm	-57 dBm
Above 1 GHz to 12.75 GHz	-30 dBm	-47 dBm
1.8 GHz to 1.9 GHz, 5.15 GHz to 5.3 GHz	-47 dBm	-47 dBm

Table 2: Transmitter limits for wideband spurious emissions

Frequency Range	Limit when Operating	Limit when Standby
30 MHz to 1 GHz	-86 dBm/Hz	-107 dBm/Hz
Above 1 GHz to 12.75 GHz	-80 dBm/Hz	-97 dBm/Hz
1.8 GHz to 1.9 GHz, 5.15 GHz to 5.3 GHz	-97 dBm/Hz	-97 dBm/Hz

Measurement Uncertainty

All measurements involve certain levels of uncertainties, especially in field of EMC. The factors contributing to uncertainties are spectrum analyzer, cable loss, antenna factor calibration, antenna directivity, antenna factor variation with height, antenna phase center variation, antenna factor frequency interpolation, measurement distance variation, site imperfections, mismatch (average), and system repeatability.

Based on NIS 81, The Treatment of Uncertainty in EMC Measurements, the best estimate of the uncertainty of a radiation emissions measurement at Bay Area Compliance Laboratories Corp. (Shenzhen) is 4.0 dB.

Test Equipment List and Details

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
Sunol Sciences	Horn Antenna	DRH-118	A052604	2011-05-05	2012-05-04
Sunol Sciences	Broadband Antenna	JB1	A040904-1	2011-07-05	2012-07-04
Rohde & Schwarz	Signal Analyzer	FSIQ 26	609358	2011-07-08	2012-07-07
Mini-Circuits	Amplifier	ZVA-213+	T-E27H	2011-03-08	2012-03-07
HP	Signal Generator	HP8657A	2849U00982	2011-10-28	2012-10-27
HP	Amplifier	HP8447D	2944A09795	2011-08-02	2012-08-02
HP	Synthesized Sweeper	8341B	2624A00116	2011-11-07	2012-11-06
COM POWER	Dipole Antenna	AD-100	041000	2011-09-25	2012-09-25
A.H. System	Horn Antenna	SAS-100/571	135	2011-05-17	2012-05-17

*** Statement of Traceability:** Bay Area Compliance Laboratories Corp. (Shenzhen) attested that all calibrations have been performed in accordance to NVLAP requirements, traceable to the NIST.

Test Procedure

The measurement equipment shall be set for peak hold mode of operation.

The measurement procedure shall be as follows:

a. The transmitter shall be operated at the highest output power, or, in the case of equipment able to operate at more than one power level, at the lowest and highest output powers;
b. The spectrum outside the stated frequency range(s) (see clauses 5.7.4.1 and 5.7.4.2) shall be searched for emissions that exceed the limit values given in clause 4.3.6.2 or that come to within 6 dB below the limit values given in clause 4.3.6.2. Each occurrence shall be recorded;
c. Tthis measurement shall be made with the transmitter set to the lowest operating frequency and with the transmitter set to the highest operating frequency.
d. This measurement shall be repeated with the transmitter in standby mode where applicable.
Where these measurements are made with a spectrum analyser, the following settings and procedures shall be used.
For finding spurious emissions the spectrum analyser shall be set as follows:
• Resolution BW: 100 kHz.
• Video BW: 30 kHz.
• Detector mode: Positive peak.
• Averaging: Off.
• Span: 100 MHz.
• Amplitude: Adjust for middle of the instrument's range.
• Sweep time: 1 s.

For measuring emissions that exceed the level of 6 dB below the applicable limit, the resolution bandwidth shall be switched to 30 kHz and the span shall be adjusted accordingly. If the level does not change by more than 2 dB, it is a narrowband emission; the observed value shall be recorded. If the level changes by more than 2 dB, the emission is a wideband emission and its level shall be measured and recorded.

Test Data

Environmental Conditions

Temperature:	25 °C
Relative Humidity:	56 %
ATM Pressure:	100.0 kPa

The testing was performed by Jimmy Xiao on 2011-12-01.

Test Mode: Transmitting

Below 1 GHz

Indicated		Table	Test Antenna		Substituted			Cable Loss (dB)	Absolute Level (dBm)	Limit (dBm)	Margin (dB)
Frequency (MHz)	S.A. Reading (dBµV)	Angle Degree	Height (m)	Polar (H/V)	Frequency (MHz)	Level (dBm)	Antenna Gain (dBd)				
Low Channel											
891.15	34.51	250	1.9	H	891.15	-62.6	0	0.69	-63.29	-36	27.29
891.15	32.94	140	2.1	V	891.15	-64.2	0	0.69	-64.89	-36	28.89
High Channel											
912.43	35.62	130	1.8	H	912.43	-61.5	0	0.70	-62.20	-36	26.20
912.43	33.46	280	1.2	V	912.43	-63.7	0	0.70	-64.40	-36	28.40

Above 1 GHz

Indicated		Table	Test Antenna		Substituted			Cable Loss (dB)	Absolute Level (dBm)	Limit (dBm)	Margin (dB)
Frequency (MHz)	S.A. Reading (dBµV)	Angle Degree	Height (m)	Polar (H/V)	Frequency (MHz)	Level (dBm)	Antenna Gain (dBi)				
Low Channel											
4804	47.28	250	1.6	V	4804	-48.1	8.3	1.68	-41.48	-30	11.48
4804	47.81	320	1.2	H	4804	-48.4	8.3	1.68	-41.78	-30	11.78
High Channel											
4960	50.14	170	1.5	H	4960	-46.1	7.9	1.72	-39.92	-30	9.92
4960	49.05	280	1.6	V	4960	-46.3	7.9	1.72	-40.12	-30	10.12

ETSI EN 300 328 V1.7.1 (2006-10) §4.3.7 - RECEIVER SPURIOUS EMISSIONS

Applicable Standard

According to ETSI EN 300 328 V1.7.1 (2006-10) §4.3.7, receiver spurious emissions are emissions at any frequency when the equipment is in received mode.

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The spurious emissions of the receiver shall not exceed the values in following tables

Table 1: Narrowband spurious emission limits for receivers

Frequency range	Limit
30 MHz to 1 GHz	- 57 dBm
Above 1 GHz to 12.75 GHz	- 47 dBm

Table 2: Wideband spurious emission limits for receivers

Frequency range	Limit
30 MHz to 1 GHz	- 107 dBm/Hz
Above 1 GHz to 12.75 GHz	- 97 dBm/Hz

Measurement Uncertainty

All measurements involve certain levels of uncertainties, especially in field of EMC. The factors contributing to uncertainties are spectrum analyzer, cable loss, antenna factor calibration, antenna directivity, antenna factor variation with height, antenna phase center variation, antenna factor frequency interpolation, measurement distance variation, site imperfections, mismatch (average), and system repeatability.

Based on NIS 81, The Treatment of Uncertainty in EMC Measurements, the best estimate of the uncertainty of a radiation emissions measurement at Bay Area Compliance Laboratories Corp. (Shenzhen) is ±4.0 dB.

Test Equipment List and Details

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
Sunol Sciences	Horn Antenna	DRH-118	A052604	2011-05-05	2012-05-04
Sunol Sciences	Broadband Antenna	JB1	A040904-1	2011-07-05	2012-07-04
Rohde & Schwarz	Signal Analyzer	FSIQ 26	609358	2011-07-08	2012-07-07
Mini-circuits	Amplifier	ZVA-213+	T-E27H	2011-03-08	2012-03-07
HP	Signal Generator	HP8657A	2849U00982	2011-10-28	2012-10-27
HP	Amplifier	HP8447D	2944A09795	2011-08-02	2012-08-02
HP	Synthesized Sweeper	8341B	2624A00116	2011-11-07	2012-11-06
COM POWER	Dipole Antenna	AD-100	041000	2011-09-25	2012-09-25
A.H. System	Horn Antenna	SAS-200/571	135	2011-05-17	2012-05-17
Rohde & Schwarz	Universal Radio Communication Tester	CMU200	109038	2011-10-28	2012-10-27

*** Statement of Traceability:** Bay Area Compliance Laboratories Corp. (Shenzhen) attested that all calibrations have been performed in accordance to NVLAP requirements, traceable to the NIST.

Test Procedure

The measurement procedure shall be as follows:

• with the equipment in the receive mode, the applicable spectrum shall be searched for emissions that exceed the limit values given in clause 4.3.7.2 or that come to within 6 dB below the limit values given in clause 4.3.7.2. Each occurrence shall be recorded.

The measurements shall be performed only under the following conditions:

• for FHSS equipment the equipment shall be tested in the receive mode on frequencies as defined in clause 5.7.4.1;

• for DSSS and other equipment the test shall be made in the receive mode, at the lowest and highest operating frequencies.

Where these measurements are made with a spectrum analyser, the following settings and procedures shall be used for narrowband emissions:

• Resolution BW: 100 kHz.
• Video BW: 30 kHz.
• Detector mode: Positive peak.
• Averaging: Off.
• Span: 100 MHz.
• Amplitude: Adjust for middle of the instrument's range.
• Sweep time: 1 s.

For measuring emissions that exceed the level of 6 dB below the applicable limit the resolution bandwidth shall be switched to 30 kHz and the span shall be adjusted accordingly. If the level does not change by more than 2 dB, it is a narrowband emission; the observed value shall be recorded. If the level changes by more than 2 dB, the emission is a wideband emission and its level shall be measured and recorded.

Test Data

Environmental Conditions

Temperature:	25 °C
Relative Humidity:	56 %
ATM Pressure:	100.0 kPa

The testing was performed by Jimmy Xiao on 2011-12-01.

Test Mode: Receiving

Indicated		Table	Test Antenna		Substituted			Cable Loss (dB)	Absolute Level (dBm)	Limit (dBm)	Margin (dB)
Frequency (MHz)	S.A. Reading (dBµV)	Angle Degree	Height (m)	Polar (H/V)	Frequency (MHz)	Level (dBm)	Antenna Gain (dB)				
549.47	30.18	180	1.5	H	549.47	-66.9	0	0.53	-67.43	-57	10.43
549.47	28.59	240	1.2	V	549.47	-68.5	0	0.53	-69.03	-57	12.03
1452.37	32.16	280	1.9	H	1452.37	-69.8	6.4	0.90	-64.30	-47	17.30
1452.37	30.84	310	1.2	V	1452.37	-71.9	6.4	0.90	-66.40	-47	19.40

EXHIBIT A - CE PRODUCT LABELING

Label Specification

Specification: Text is Black or white in color and is left justified. Labels are printed in indelible ink on permanent adhesive backing and shall be affixed at a conspicuous location on the EUT or silk-screened onto the EUT.

Proposed Label Location on EUT

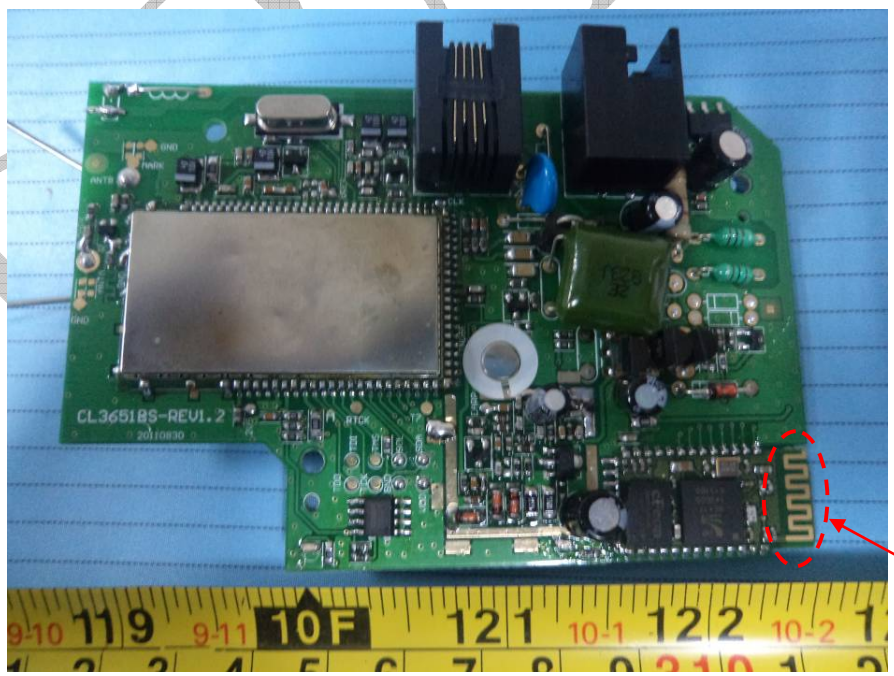
EXHIBIT B - EUT PHOTOGRAPHS

EUT – Front View

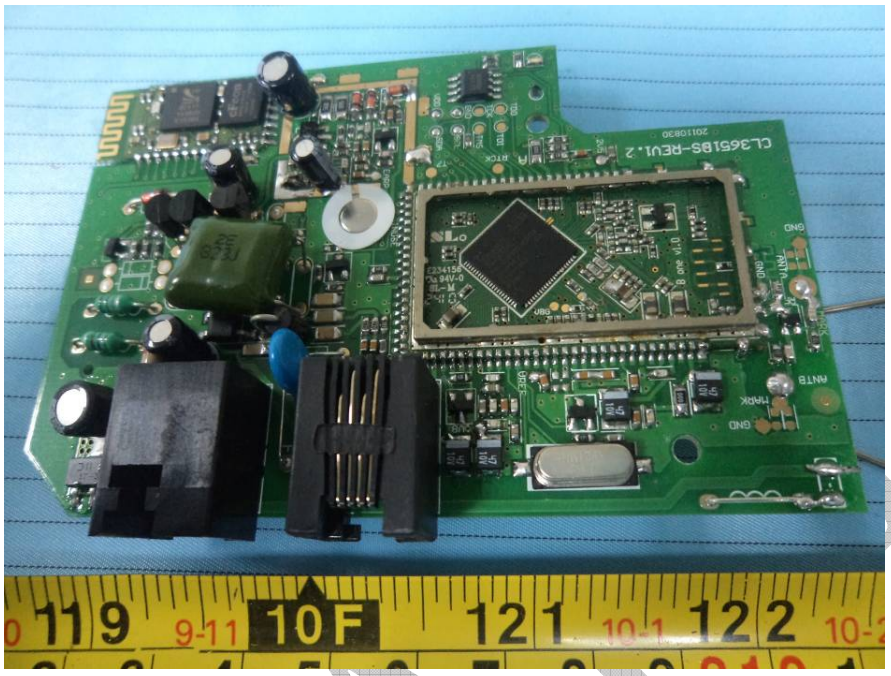
EUT – Rear View

EUT – Cover off View

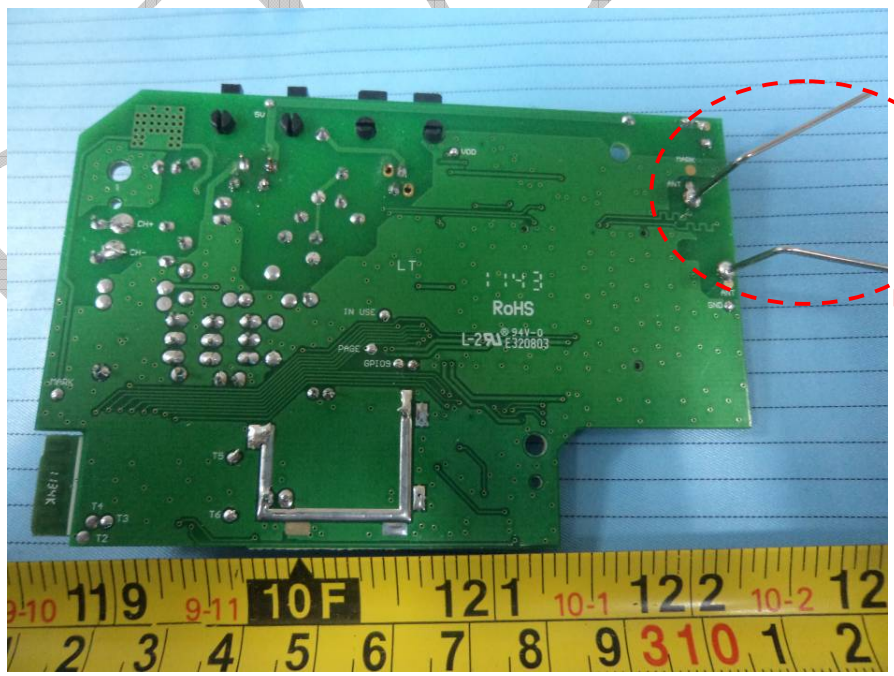
EUT – Main Board Top View



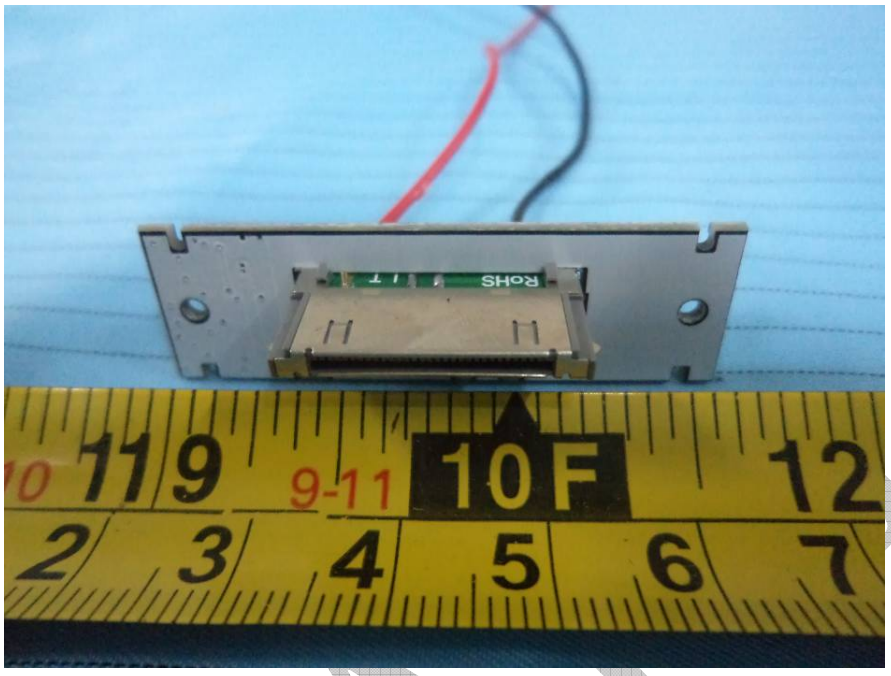
EUT – Main Board Top Shielding off View



EUT – Main Board Bottom View



EUT – iPhone Charging Board Top View



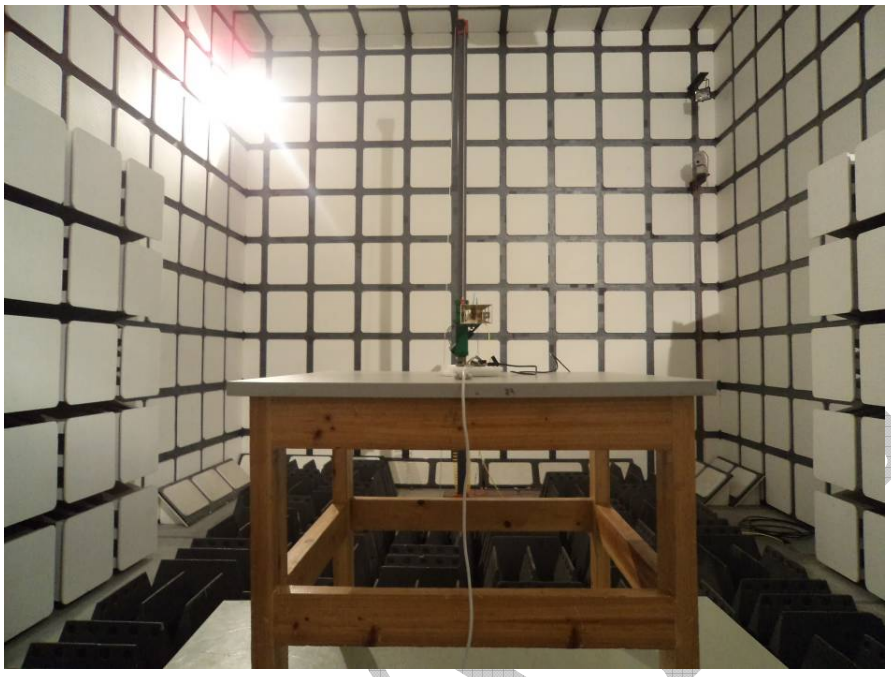
EUT – iPhone Charging Board Bottom View

EUT – Adapter View

EUT – Adapter Label View

EXHIBIT C - TEST SETUP PHOTOGRAPHS

Radiated Emissions



Extreme Condition Test View

*******END OF REPORT*******